ISD's New Web Page

Check it out under "Government" on Montana On-line

http://www.mt.gov
or directly at
http://www.mt.gov/isd.

ISD's new Web page is an exciting, dynamic place to find out all about us. You'll find Technical Information, information on our Services, our Rates, our Organization, our Strategic Planning, our Advisory Groups. We're developing a section on Information Technology policies, sections on Interactive Video and What's Happening with GIS. Eventually, all electronic information provided by ISD will be available through this homepage or its links to other sources.

Wendy Wheeler is the Site Coordinator. Please contact her with comments or suggestions on content at 444-2856, ZIP!, or E-Mail at wwheeler@mt.gov. For site technical assistance, contact your network administrator.

The Montana Cadastral Mapping Project

The Montana Cadastral Mapping Project has been launched under the direction of the newly formed GIS Services Section at ISD. Cadastral mapping is generally defined as an official register of the quantity, value and ownership of real estate, recording property boundaries and other related details. This venture is a private/public partnership providing cost savings, cooperation and efficiency

INSIDE

that will develop a coordinated statewide digital database of landownership information. Coordination between government agencies and other organizations will decrease costs for data development, reduce duplication of efforts, and increase uniformity and compatibility of data sets.

Landownership information is important for many Geographic Information System (GIS) applications used by federal, state and local government agencies and by private companies. Information about landownership is essential for city/county planning, transportation, utility corridors, emergency services, equitable property taxation and natural resource management. GIS technology allows quick and accurate analysis of land information by using visual interpretations derived from mapped data to evaluate options, guide decision-making, monitor and evaluate program results and communicate program information to customers and the public.

The project is being defined as follows:

The Montana Cadastral Mapping Project will assess the status of Montana's parcel maps, work with all

parties to develop statewide cadastral standards and assist in developing local and regional solutions for digital map creation and maintenance where appropriate. It will also provide education and training opportunities and coordinate the diverse project components in order to develop land information systems that will interface to form a large scale statewide cadastral data base that will be maintained for all Montanans to access, now and in the future.

Questions about the Montana Cadastral Mapping Project may be directed to the project manager, Stewart Kirkpatrick, of Information Services Division at 444-9013, ZIP! or E-Mail at skirkpatrick@mt.gov.

Electronic Road Conditions

Daily statewide winter road reports began for the season October 28th. Some new features are:

7 am interstate report
7:30 detailed report
Internet access
state public bulletin board access

By using a computer with a modem, one can access the detailed, section-by-section, report on most highways on the State Bulletin Board System (BBS) or on the Montana Department of Transportation's home page on the Internet:

http://www.mdt.mt.gov/rdrpt/rdrpt.htm

The numbers for the BBS are 800-962-1729 and (406) 444-5648. The report is updated daily at or before 7am and again at 2 pm. Road cards are now available listing the district's local road report number, as well as neighboring state's numbers. If you have any questions regarding this please contact Bodell Miller, road reports supervisor at 444-0468.

Enterprise Wide News

Calendar of Events

December 4
Information Technology Management Group (ITMG), 8:30 am, Rm 111, Metcalf

December 5
Public Safety Communications Task Force (PSCTF), 1:00 pm, Rm C209, Cogswell
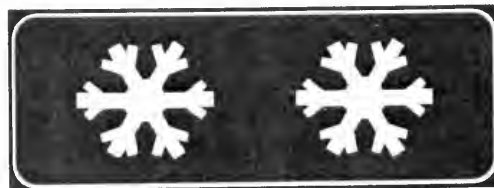
December 17
SummitNet Executive Council (SEC), 2:00 pm, DPHHS Auditorium

December 20
Blue Ribbon Task Force (BRTF), 10:00 am, Rm 104, Capitol

January (to be rescheduled)
Information Technology Management Group (ITMG), 8:30 am, Rm 111, Metcalf

Year 2000 Project - The Early Phases

Project Phases

The Gartner Group (GG) has identified the following nine steps in a Year 2000 (Y2K) compliance project. These steps and the relative percentage of total effort required for each task are as follows:

- Awareness - 1%
- Inventory - 1%
- Assessment - 4%
- Solutions - 20%
- Modifications - 20%
- Unit Testing - 25%
- System Testing - 15%
- Integration/Acceptance Testing - 5%
- Implementation - 9%

Managing a Y2K project is estimated to add an additional 25% to the total project cost. The far-ranging nature of Y2K impacts makes the effort much more of a project management problem than a technical one. A systematic approach that emphasizes planning and control is essential.
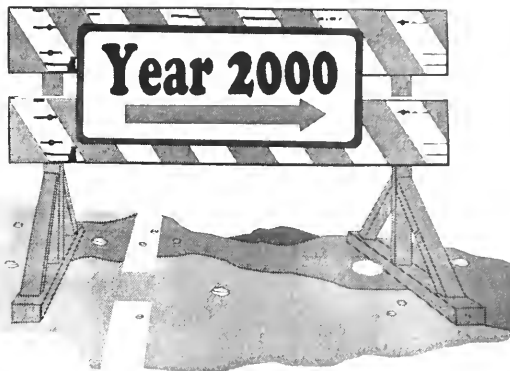
Awareness

Gaining upper management sponsorship of Y2K compliance efforts is a must. Absent that sponsorship, the project could lack the necessary prioritization and dedication of resources. There may be an initial reluctance to devoting limited resources and dollars to a project that, in and of itself, adds little value or capability to the organization. The approach most likely to gain management buy-in is one that seeks to leverage this required activity into an outcome that, in fact, does advance the goals and objectives of the department.

Can the Y2K compliance strategy be crafted such that, in addition to enabling the application to function in the year 2000, it also: improves the technical and/or functional quality of the application; migrates from outdated programming languages or development

environments; reengineers associated business processes; and/or redeploys to a new platform, such as client server.

Other means of fostering management sponsorship include: identifying specific examples of the problem in your own departmental systems; showing the scale of the problem (e.g. total lines of code or numbers of programs); and using industry information. The following Web sites are good sources:

- http://www.year2000.ca.gov/Correspondence
  (State of CA overview white paper)
- http://www.year2000.com
  (Year 2000 Information Center)
- http://www.software.ibm.com/year2000/
  resource.html
  (IBM Year 2000)

Awareness is also needed at the business unit level, as there are numerous Y2K impacts that are outside the realm of the IT department. These include: end-user developed databases and spreadsheets; business forms (__, 19__); security systems; AC/heating units; phone systems; elevators; traffic signals; lab monitoring/analysis equipment; and any other equipment that has a computer chip in it.

Inventory

A critical step in both assessing the scope and costs of a Y2K compliance effort, and avoiding unanticipated problems as the project progresses, is a comprehensive inventory of systems. This process involves itemizing all software (developed in-house by either the central organization or end-users, as

Mainframe News

well as vendor packages), hardware, networks, databases, files, programming languages, utilities, and interfaces. Non-IT assets that utilize computer chip technology must also be accounted for.

Each application and its associated source code, JCL, file descriptors, copy books, include files, database schemas, development tools, procedures, and run-time tools must be identified.

This task should involve more than simply listing the applications and associated files. The first step should be creating a list or flowchart of all operational processes. This can then be used as the basis for determining which information processing applications and data sets support which operational processes. This will help assure that unknown, undocumented, or inadvertently omitted software is not missed.

The inventory step will identify the skills and capabilities that will subsequently be required. This information can then be used to determine staffing requirements and can also assist in the selection of an automated tool and/or contracted services provider.

At the end of the inventory stage, the scope of the problem should be known, preliminary cost and time estimates made, and the project divided into discrete work units for subsequent detailed analysis.

For more information contact Dan Sidor, ISD's Year 2000 Compliance Officer at 444-2029, ZIP! or E-Mail at dsidor@mt.gov.

ES/9021 - 832 Processor Installed

On Saturday, November 9, 1996, ISD installed the ES/9021-832 mainframe processor. The 821 was brought down and powered off at 6:50 am on Saturday. For the next 11 hours, IBM personnel, plumbers and electricians worked to get the 832 operational. Our first Initial Program Load (IPL) was at 6:37 pm. After an initial test period, ISD IPLed the system for production work at 7:51 pm.

A few difficulties ('hassles') were experienced during this upgrade process. We encountered some problems switching the teleprocessing network between SYSA and SYSB on Saturday. There was a water flow problem with the cooling system on Sunday. On Tuesday, the 832 encountered some storage problems which were fixed with the emergency IPL at 2:30 pm. Unfortunately, one of the cooling system's water hoses began leaking Wednesday evening. We apologize for any inconvenience these problems caused our user community.

During the first week of production, the 832 averaged 62% CPU utilization during prime shift (8 am to 5 pm) whereas the 821 in the week previous to the install was averaging about 92% CPU utilization. Processing capacity increased by 50% with the addition of 512 MB of central storage (total 1024 MB), 1024 MB of expanded storage (2048 MB) and 1 central processing unit (total of 3 CPs). See the November *News & Views* for additional details on the new ES 9021-832 and look for more performance information in the January *News & Views*.

For more information contact Robin Anlian of Computing Operations Bureau at 444-2898, ZIP! or E-Mail at ranlian@mt.gov.
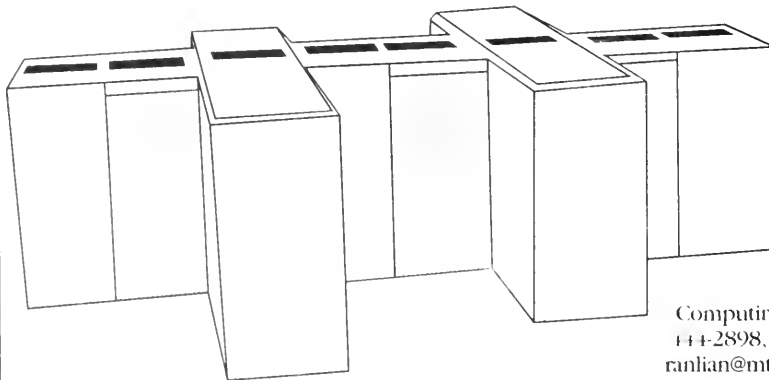
Mainframe Password Changes

As stated in the November edition of ISD *News & Views*, new password standards will be implemented on the mainframe beginning December 16 when the global control that sets the minimum password length will change to 6. Any password that is less than 6 characters will continue to work until it expires or until a user optionally changes it. Then, the system will accept no less than 6 characters.

Also on December 16, the individual parameter which controls password duration (90 day, 60 day) will be changed on select Logon IDs. This process will continue daily for approximately thirty days or until all IDs comply with the 60 day maximum password duration. This parameter will not be changed on all IDs simultaneously because many passwords would expire in the process.

The password history function (passwords must not be reused for at least 4 cycles) will not be implemented until mid January. Look for the new standard implementation date in the January *News & Views*.

The screens where passwords are entered and/or changed (Super Session Entry Validation screen, CICS logon screen, Public Access Network screen) will not change nor will the method of entering or changing a password. The password fields on those screens will accept up to 8 characters.

Valid characters for mainframe passwords include all alpha and numeric plus the special characters @ # $.

If you have questions about this or any other Mainframe/ACF2 security issues please contact Mick Plovanic of Security Methods & Media Management at 444-2571, ZIP!, or E-Mail at mplovanic@mt.gov.

Drop Dead Date for New User Number

December 8, 1996 approaches!!!!

This is the date when jobs using the old **4 digit user number** on the jobcard will fail with a **JCL ERROR**. (The job does not execute.) **EVERY** BATCH JOB SUBMITTED TO EITHER OF THE MVS/ESA MAINFRAMES (SYSA - 832 or SYSB - 4381) **MUST** USE THE 6 ALPHANUMERIC LOGONID NUMBER. This includes jobs that are submitted from other sites, i.e., NJE submitted jobs or RJE submitted jobs. If your agency has applications that receive information from the First Bank Systems in Minneapolis (i.e., warrants) or from one of the Montana University sites (i.e., SBAS), please contact them to have the jobcard they use changed!

We have scanned the SYSLOG and found quite a few jobs still receiving the XSMF104 warning message. The following is a **small** sampling of the job names receiving this message: CHACCTNG, CH2621PD, RH121GV, CH5758R, CL0357M1, CI0744AA, REPUIBNK, C84872D2, R09389AA, R6UMSBAS, R00928X1, RN0711PQ, CN0705NM, RR64250A, CF0462CA, CMAEAPPR, CB8603CA, CD9140C2, CSTDUP05, CSTMMU03, RS18060W, CE0477F1. Do these look familiar?

For detailed information on this topic, see the September 1996 ISD *News & Views*.

For more information contact Robin Anlian of Computing Operations Bureau at 444-2898, ZIP! or E-Mail at ranlian@mt.gov.

Meeting News

ITAC Streamlined

At the November 12 meeting of the Information Technology Advisory Council, the group voted to trim itself from a body with close to 30 participants to a council of 11 members.

ITAC streamlined itself in order to have faster, better quality decision and policy making for information technology issues that affect the state enterprise. The new smaller size will allow ITAC to respond more quickly to initiatives and needs in the enterprise, enabling ISD to be a more agile service provider.

The new structure was recommended by the Coordination Task Force of ITAC partially in response to the 1994 Strategic Plan, and partially in response to concerns expressed by members of the IT community and ITAC itself.

The new structure will begin July 1, 1997 and will consist of the following membership:

Permanent members:

Chair: Director, Department of Administration
        Judicial Branch representative
        Legislative Branch representative
        University System representative
        Public Education representative
        Local Government representative

Rotating members:

        1 representative from tier 1 (0-100 FTE)
        1 representative from tier 2 (101-250 FTE)
        1 representative from tier 3 (251-500 FTE)
        1 representative from tier 4 (501-1000 FTE)
        1 representative from tier 5 (1001+)

Rotating members will be appointed by the Director of the Department of Administration for two year terms. Only designated members will have voting privileges. It is anticipated that meetings will be held more frequently and are open for any agency to attend. ITAC will hold periodic "shareholder" meetings to update all agencies on ITAC activity and receive input as to ITAC direction.

Other Business

ITAC also approved two policies advanced by the Access and Privacy Task Force. The first is "Aggressive Use of Information Technology to Provide Citizen Access to Information and State Services". The policy is designed to support the enterprise use of information technology and emerging technologies to provide efficient, effective, equal and universal citizen access to information and State services.

The second policy is "Transmission Privacy" and addresses the risk of inappropriate access to confidential information. The policy states that transmissions may be intercepted only when it is necessary to providing the State's electronic communication service or for protecting the rights and property of the State of Montana. The electronic communication service may not be used for observing, random monitoring, or otherwise intercepting electronic information on the State's telecommunications network except in specified instances. The policy contains more detail to ensure privacy and confidentiality of electronic transmissions. These policies are available on the ISD web page (http://www.mt.gov/isd), on doa_vas_001\sys:guest\policy\current, or, by contacting Brett Van Voast of ISD at 444-9757, ZIP! or E-Mail at bvanvoast@mt.gov.

Complete minutes of the ITAC meeting are available on the state BBS and the ISD Value Added Server at doa_vas_001\sys:guest\itacinfo\minutes or by contacting Amanda Christen of ISD at 444-2700, ZIP! or E-Mail at achristen@mt.gov.

ITMG November Meeting

The Information Technology Managers Group held their most recent meeting on November 6, 1996. The meeting was primarily educational, with a
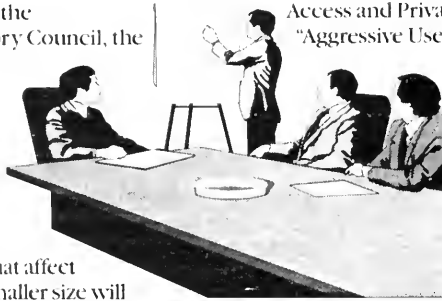
variety of presentations and updates made by members and ISD.

● Highlights of the meeting:

Geoffrey Cann of the Deloitte Touche consulting firm presented an update on the MT PRIME project, emphasizing that this is not a "systems project, but a business project." (See the September of ISD *News & Views* for a description of the MT PRIME project)

The Operating Systems/ E-Mail Subcommittee recommendations were approved by the full membership. ITMG will continue to work with ISD throughout the Request for Proposal phase of acquiring a new enterprise E-Mail system.

Further action by the Enterprise Software Subcommittee regarding software distribution/ network management tools has been deferred until next Spring.

ISD's Year 2000 Compliance Officer presented an overview of the Year 2000 problem, its implications and some options for proceeding.

● ISD updated the group on the new BBS services to be provided under a contract with the Office of Public Instruction.

Complete minutes of the meeting are available on the state BBS and the ISD Value Added Server at doa_vas_001\sys:guest\itmginfo\minutes or by contacting Amanda Christen of ISD at 444-2700, ZIP! or E-Mail at achristen@mt.gov.

SAS 611 PROC FREQ Procedure Gets a Face Lift

The FREQ procedure now computes measures of agreement, including the Kappa statistic (simple and weighted), McNemar's test, Cochron's Q, and Bowker's test of symmetry. The FREQ procedure also computes the polychoric correlation coefficient.

● The OUTPUT statement in the FREQ procedure allows you to output any computed statistic to a SAS dataset, and the NOPRINT option on the PROC FREQ statement suppresses all printed output. You can output row, column, and table percentages in the OUT= data set using the OUTPCT option in the TABLES statement. You can also output expected frequencies in the OUT= dataset using the OUTEXPECT option.

Syntax

PROC FREQ Statement

The following option has been added to the PROC FREQ statement.

NOPRINT
Suppresses all printed output from PROC FREQ.

Note that a NOPRINT option continues to be available in the TABLES statement. It suppresses printing of the tables but allows printing of the statistics specified by the AGREE, ALL, CHISQ, CMH, EXACT, MEASURES, and PLCORR options.

TABLES Statement
The following identifies some of the new options which have been added to the TABLES statement.

AGREE
requests tests and measures of classification agreement. These statistics are appropriate for analysis of samples classified in square tables, that is, tables where the number of rows equals the number of columns. The AGREE option provided McNemar's test for 2 x 2 tables and Bowker's test of symmetry for tables with more than two response categories. The AGREE option also produces the simple Kappa statistic, the weighted Kappa statistic, their asymptotic standard errors, and the corresponding confidence bounds. When there are multiple strata, the AGREE option computes overall simple and weighted Kappa statistics, as well as tests for equal Kappa among strata. Also, Cochran's Q test is computed when there are multiple strata and two response categories.

OUTEXPECT
includes the expected frequency in the output data set specified in the OUT= option. The OUT= data set contains one observation for each combination of variable values, or table cell, in the last table request.

OUTPCT
includes percentages of column, row, and two-way table frequencies in the output data set specified in the OUT= option.

TOTPCT
prints the percentage of total frequency on cross-tabulation tables for n-way tables where n>2.

For questions or more information, contact Jerry Kozak of the End User Systems Support group at 444-2907, ZIP! or E-Mail at jkozak@mt.gov.

Using Display Masks in Lotus Approach

Lotus Approach allows you to create custom display masks which can remove leading zeros, put the dashes in a Social Security number, put parenthesis around an area code in a phone number and many other useful purposes.

To establish a format mask, go into design mode and double click on the field you wish to change. The properties box for that particular field appears (Figure 1).

If you click on the green symbol #, you will see another window; *Display As Entered*. Click on the down arrow, then select *Numeric*. You will see:
Format Type:
Current Format: *Integer*
Format code: #,##0;(#,##0)

You will also see a sample format of the data; in this case 1,234 (Figure 2).

If you click on the **format code** line you can change it to display any number of decimals up to 15 or have the value enclosed in parentheses.

For Example: Let's change the format mask to display two decimal places. We need to change the format code to appear as #,##0.#0;(#,##0.#0).

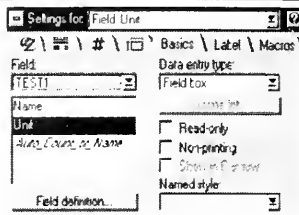Notice that the **data entry format** now displays a two decimal value (Figure 3).
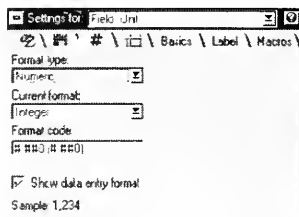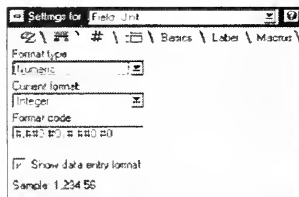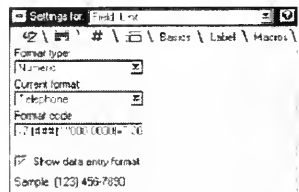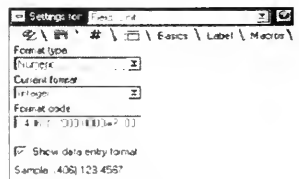

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Let's do another. Using the same method change the phone mask to automatically fill in the 406 for a Montana area code.

You need to click on the down arrow next to the **Current format** and choose *Telephone* (Figure 4).

You will notice that the current **Format code** is: >⁻ *(###)" "000-0000|=⁻000-0000* which means if the number is less than seven digits, there is no area code necessary. We wish to use an area code for this demonstration. To change the **format code** just replace the ### with " 406". The 406 is in quotes because we wish to display this as a pre-defined value.

It should look like Figure 5.

If you have any questions concerning this feature of Approach, please contact Brian Divine of the End User Systems Support group at 444-2791, ZIP! or E-Mail at bdivine@mt.gov.

Explorer Notes - Another Windows 95 Freebie

Explorer Notes, a free utility from *PC Magazine*, enhances Windows 95 Explorer by letting you associate a note of up to 255 characters with any file or folder. Explorer Notes adds a fifth column to Explorer's detail view for note display; a notes column also appears in the detail view of Windows 95 standard file dialogs. The Explorer Notes control window provides a **Find** dialog that lets you find files by searching through your notes. Following are excerpts from the En.Txt file that accompanies the En files.

To install Explorer Notes, *copy* the files Expnotes.exe, Expnotes.hlp, Expnotes.cnt, and EN_DLL.DLL into a directory. All four files must reside in the same directory. To set up Explorer Notes so that it runs every time you start Windows 95, add it to the **StartUp** folder. Explorer Notes should always be loaded before Explorer.

Explorer Notes adds an **Add/Edit** Note menu item to the context menu that appears when you right-click on a single file or folder icon. When you select this menu item, a note-editing dialog displays

the file's note, if there is one. If you right-click on one of a group of selected items, the added menu item's text will be **Append** Note. Selecting this menu item will bring up the same note-editing dialog but without the display of existing notes. The text you enter will be added to the note for each of the selected items. If an item has no note, the new text will become its note.

When Explorer Notes is active, it displays a tiny icon in the Taskbar's notification area. You can click on this icon to bring up the Explorer Notes Control window, which contains four buttons: *Find*, *Prune*, *Help*, and *About*.

To search for a particular note, use the *Find* button. Occasionally, the *Find* feature may inform you that it has found a note, but that the corresponding file doesn't exist. You can minimize the occurrence of these orphaned notes by doing all of your file manipulation through Explorer. No matter how careful you are, however, there will probably be some orphaned notes in Explorer Notes's storage tree. To clean up the storage tree, press the *Prune* button in the **Control** window.

Explorer Notes (Version 1.00) Copyright © 1996 Ziff Davis Publishing Company by Neil Rubenking First Published November 5, 1996

If you would like a copy of Explorer Notes, the files are available on the ISD Value Added Server at doa_vas_001\sysguest\windows\winaddon\95addons\EN. If you don't have access to the VAS, or have questions about it, contact Denny Knapp of End User Systems Support at 444-2072, ZIP!, or E-Mail at dknapp@mt.gov.

New Version of DocumentDirect

A new maintenance release of DocumentDirect became available October 11, 1996. DocumentDirect is the Windows interface to Infopac-RDS, the mainframe automated report distribution system. This release contains some new features. Most notable is a Toolbar. This Toolbar supports some of the most common DocumentDirect functions such as opening and closing reports, searching for text, locating report

Term Contract News

sections, exporting, recording and playing scripts, opening the Document Explorer, and printing the current page. Other features added with this release include the addition of scroll bars to the Document Explorer window. Also, when exporting, you can now append the exported data to the end of an existing file.

If you have not already installed this new release, you may want to do so in the near future. It may be down loaded from the VAS Server. Instructions for down loading are contained in doa_vas_001\sys:guest\rds\docdir\install.w51. If you do not have access to the VAS server, it may also be loaded from diskettes by calling Dave Smith at 444-2857 or Jan Lewis at 444-2901 for a copy and assistance. They are also your source for more information about Infopac-RDS or DocumentDirect in general. They will be happy to provide a demonstration of RDS and DocumentDirect to show how to make your reports available for on-line viewing as well as simplifying the distribution of hard copy reports. RDS is now a widely used tool which can save paper, personnel time, and money.

For further information contact Dave Smith or Jan Lewis of the Computing Operations Bureau. Contact Dave at 444-2857, ZIP! or E-Mail at dasmith@mt.gov, or Jan at 444-2901, ZIP! or E-Mail at jlewis@mt.gov.

Term Contract News

Dell's New PowerEdge 4100 is Coming to Market

Last month you heard about Dell's new PowerEdge 2100. This week, the PowerEdge 4100, Dell's new dual Pentium Pro mid-range server, is in the news. The PowerEdge 4100 supports Pentium Pro performance and a 2-channel ultra/wide Small Computer Systems Interface (SCSI) integrated controller. Advanced server management features and Dell's customized service and support provide for easy maintenance. Redundant hot-plug components and Redundant Array of Independent Drives (RAID) support guarantee maximum up-time.

Included in the 4100 are up to two Pentium Pro processors, Error Checking and Correction (ECC) memory, Ultra Wide SCSI-3 support, Integrated Server Management and RAID-II support. There are a total of 10 expansion bays with an easy access tower chassis. All this with a price unmatched in its class.

Dell PowerEdge Servers have an edge on the competition due to close industry connections that insure the servers always meet the latest industry standards. Due to customized manufacturing, you have complete control of every aspect of the system you want. Your server is built to your hardware specifications and the software your require can be pre-loaded onto each machine. Dell's service professionals will help you design the optimal network configuration for your site.

For more information contact Scott Mangum of Dell at 800 274-7799 x66226.

IBM Introduces the PC Server 310.

The PC Server 310 is configured as an entry-level server with sufficient expansion to allow the server to be expanded to a file or database server supporting fifty or more clients. As an open-architecture, industry standard system, the PC Server 310 has been tested with numerous IBM and non-IBM adapters and devices. Rugged dependability is achieved by incorporating various quality standards and design points, such as stringent IBM systems assurance testing.

The PC Server 310 systems are optimized for independent LAN environments that require a powerful yet compact space-saving PC Server that provides ease-of-installation and system management. All PC Server 310 models feature TME 10 NetFinity, a comprehensive systems management tool that allows the LAN administrator to monitor and manage NetWare servers from Windows workstations.

The system board provides one serial port, two Universal Serial Bus (USB) ports, one Infrared (IR) port, and a parallel port. The system board provides a high-performance 32-bit PCI bus that connects a 64-bit video supporting all VGA modes and Video Electronics Standards Association (VESA) 1.2-compliant SVGA modes, and three 32-bit PCI card slots. A bridge is provided to five Industry Standard Architecture (ISA) expansion connectors. Three of these expansion connectors share space with the PCI expansion slots, allowing ISA or PCI adapter cards to occupy the expansion slots. The two remaining ISA connectors have dedicated expansion slots. One PCI card slot is occupied by a PCI Ultra-Wide SCSI Controller, leaving two 32 bit PCI slots available for optional high-performance adapters.

The PC Server 310 comes with IBM's new PC Server Start Up Support that provides additional HelpWare coverage during the first 90 days from installation

For more information contact Mike Price of ComputerLand at 443-5290.

Training Calendar

This schedule has been assembled by the Helena College of Technology of the University of Montana. If you have any questions about enrollment, please call 444-6821. All classes will be held at the Helena College of Technology at 1115 N. Roberts. Please note that these costs are subject to change each July 1st.

To enroll in a class, **you must send or deadhead an enrollment application** to the State Training Center, HCT, Helena, MT 59601. If you have questions about enrollment, please call 444-6821. *Once you enroll in a class, the full fee will be charged UNLESS you cancel at least three business days before the first day of class.* HCT is also willing to schedule specific classes by request from state agencies.

	DATES	COST	LENGTH
Client/Server Database Classes			
Intro. To Oracle(New Version)	January 6,7	170.00	2
	February 18,19		
Oracle End User Tools	December 16	85.00	1
Prereq. Intro. to Windows			
Oracle Reports	December 9,10	170.00	2
Prereq. Intro to Oracle			
Intro. To SQL(New Version)	January 13,14	170.00	2
Prereq. Intro to Oracle (New Version)	February 24,25		
Oracle Developer 2000, Part I(New Version)	January 21-23	255.00	3
Prereq. Intro to SQL			
PL/SQL Programming(New Version)	January 27,28	170.00	2
Prereq. Oracle Developer 2000, Part I			
Oracle Developer 2000, Part II(New Version)	February 3,4,5	255.00	3
Prereq. PL/SQL Programming			
Designer 2000	December 26	*850.00	5
*Price may vary depending on instructors expenses			
Lotus Approach	December 13	85.00	1

Please Note the Changed Oracle Sequence Starting January 1997 - All classes are listed in order of the required prerequisites. If you are missing a course(s) from the former sequence, we will make arrangements to fit you into the new sequence.

Introduction to Oracle 2 Days
Relational Database Theory
Modeling
Client / Server
The Oracle Architecture
Introduction to SQL 2 Days
Oracle Developer 2000, Part I 3 Days
Forms
Reports
Graphics

PL/SQL Programming   2 Days
SQL Programming
Functions
Procedures
Oracle Developer 2000, Part II 3 Days
Advanced Forms
Advanced Reports
Oracle Designer 2000   5 Days

	DATES	COST	LENGTH
Data Network/Mainframe Classes			
Novell Netware 4.1	December 16-20	*1000.00	
Microcomputer Classes			
Introduction to Windows	December 2	85.00	1
	January 8		
	February 6		
Windows 95(2)	December 9 am&pm	42.50	1/2
	January 8 am&pm		
ZIP!Office	December 4 am	Free	1/3
Prereq. Intro to Windows	January 9 am		
	February 19 pm		
Intro. to Internet	December 11am&pm	42.50	1/2
Prereq. Intro to Windows	January 15 am&pm		
	February 13 am		
Internet	February 6,7	170.00	2
Prereq. Intro to Windows			
HTML	January 9,10	170.00	2
	February 20,21		
WordPerfect 6.1 for Windows	January 13,14	170.00	2
Prereq. Intro to Windows	February 10,11		
WordPerfect 6.1 Conv. Windows	December 18	85.00	1
Prereq. Intro to Windows	February 24		
WordPerfect 6.1 Tables & Merge	December 12 am	42.50	1/2
Prereq. WP 6.1 Conv. to Windows			
Desktop Publishing W/ WP 6.1	December 4,5	63.75	1 1/2
Prereq. WP 6.1 for Windows			
Lotus for Windows	January 21,22	170.00	2
Prereq. Intro to Windows	February 18,19		
Lotus Conv. for Windows	December 3	85.00	1
Prereq. Intro to Windows	February 12		
Lotus Macros	February 26	42.50	1/2

Prerequisites may be met with consent of Instructor.

Training News
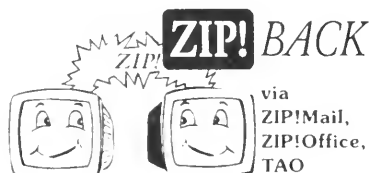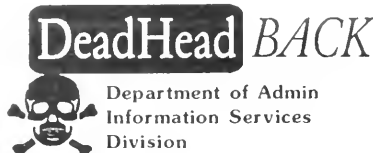
Editor's Notes

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